



(1) GENERAL INFORMATION:

- (i) APPLICANTS: Knuth, Alexader; Jager, Elke; Chen, Yao, Scanlan, Matt; Gure, Ali, Old, Lloyd, Ritter, Gerd
- (ii) TITLE OF INVENTION: ISOLATED PEPTIDES CORRESPONDING TO AMINO ACID SEQUENCES OF NY-ESO-1, WHICH BIND TO MHC CLASS I AND MHC CLASS II MOLECULES, AND USES THEREOF
- (iii) NUMBER OF SEQUENCES: 15
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: FULBRIGHT & JAWORSKI LLP
  - (B) STREET: 666 Fifth Avenue
  - (C) CITY: New York City
  - (D) STATE: New York
  - (E) COUNTRY: USA
  - (F) ZIP: 10158
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Diskette, 3.5 inch, 144 kb storage
  - (B) COMPUTER: IBM
  - (C) OPERATING SYSTEM: PC-DOS
  - (D) SOFTWARE: Word
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: 09/165,546
  - (B) FILING DATE: October 2, 1998
  - (C) CLASSIFICATION: 530
- vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: 09/062,422
  - (B) FILING DATE: April 17, 1998
- (vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: 08/937,263
  - (B) FILING DATE: September 15, 1997
- (vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 08/725,182
  - (B) FILING DATE: October 3, 1996
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Hanson, Norman D.
  - (B) REGISTRATION NUMBER: 30,946
  - (C) REFERENCE/DOCKET NUMBER: LUD 2166.4 CIP (09807811)
- (ix) TELECOMMUNICATION INFORMATION:
  - (A) TELEPHONE: (212) 318-3000
  - (B) TELEFAX: (212) 318-3400

(2) INFORMATION FOR SEQ ID NO: 1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 752 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

ATCCTCGTGG GCCCTGACCT TCTCTCTGAG AGCCGGGCAG AGGCTCCGGA GCC	53
ATG CAG GCC GAA GGC CGG GGC ACA GGG GGT TCG ACG GGC GAT GCT	98
Met Gln Ala Glu Gly Arg Gly Thr Gly Gly Ser Thr Gly Asp Ala	15
5 10	
GAT GGC CCA GGA GGC CCT GGC ATT CCT GAT GGC CCA GGG GGC AAT	143
Asp Gly Pro Gly Gly Pro Gly Ile Pro Asp Gly Pro Gly Gly Asn	30
20 25	
GCT GGC GGC CCA GGA GAG GCG GGT GCC ACG GGC GGC AGA GGT CCC	188
Ala Gly Gly Pro Gly Glu Ala Gly Ala Thr Gly Gly Arg Aly Pro	45
35 40	
CGG GGC GCA GGG GCA GCA AGG GCC TCG GGG CCG GGA GGA GGC GCC	233
Arg Gly Ala Gly Ala Ala Arg Ala Ser Gly Pro Gly Gly Gly Ala	60
50 55	
CCG CGG GGT CCG CAT GGC GGC GCG GCT TCA GGG CTG AAT GGA TGC	278
Pro Arg Gly Pro His Gly Gly Ala Ala Ser Gly Leu Asn Gly Cys	75
65 70	
TGC AGA TGC GGG GCC AGG GGG CCG GAG AGC CGC CTG CTT GAG TTC	323
Cys Arg Cys Gly Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe	90
80 80	
TAC CTC GCC ATG CCT TTC GCG ACA CCC ATG GAA GCA GAG CTG GCC	368
Tyr Leu Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala	105
95 100	
CGC AGG AGC CTG GCC CAG GAT GCC CCA CCG CTT CCC GTG CCA GGG	413
Arg Arg Ser Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro Gly	120
110 115	
GTG CTT CTG AAG GAG TTC ACT GTG TCC GGC AAC ATA CTG ACT ATC	458
Val Leu Leu Lys Glu Phe Thr Val Ser Gly Asn Ile Leu Thr Ile	135
125 130	
CGA CTG ACT GCT GCA GAC CAC CGC CAA CTG CAG CTC TCC ATC AGC	503
Arg Leu Thr Ala Ala Asp His Arg Gln Leu Gln Leu Ser Ile Ser	150
140 145	
TCC TGT CTC CAG CAG CTT TCC CTG TTG ATG TGG ATC ACG CAG TGC	548
Ser Cys Leu Gln Gln Leu Ser Leu Leu Met Trp Ile Thr Gln Cys	165
155 160	
TTT CTG CCC GTG TTT TTG GCT CAG CCT CCC TCA GGG CAG AGG CGC	593
Phe Leu Pro Val Phe Leu Ala Gln Pro Pro Ser Gly Gln Arg Arg	180
170 175	
TAAGCCCAGC CTGGCGCCCC TTCCTAGGTC ATGCCTCCTC CCCTAGGGAA	643
TGGTCCCAGC ACGAGTGGCC AGTTCATTGT GGGGGCCTGA TTGTTTGTCG	693
CTGGAGGAGG ACGGCTTACA TGTTTGTTTC TGTAGAAAAT AAAACTGAGC	743
TACGAAAAA	752

- (2) INFORMATION FOR SEQ ID NO: 2:  
 (i) SEQUENCE CHARACTERISTICS:  
   (A) LENGTH: 31 base pairs  
   (B) TYPE: nucleic acid  
   (C) STRANDEDNESS: single  
   (D) TOPOLOGY: linear  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

CACACAGGAT CCATGGATGC TGCAGATGCG G

31

- (2) INFORMATION FOR SEQ ID NO: 3:  
 (i) SEQUENCE CHARACTERISTICS:  
   (A) LENGTH: 32 base pairs  
   (B) TYPE: nucleic acid  
   (C) STRANDEDNESS: single  
   (D) TOPOLOGY: linear  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

CACACAAAGC TTGGCTTAGC GCCTCTGCCC TG

32

- (2) INFORMATION FOR SEQ ID NO: 4:  
 (i) SEQUENCE CHARACTERISTICS:  
   (A) LENGTH: 11 amino acids  
   (B) TYPE: amino acid  
   (D) TOPOLOGY: linear  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu  
                   5                  10

- (2) INFORMATION FOR SEQ ID NO: 5:  
 (i) SEQUENCE CHARACTERISTICS:  
   (A) LENGTH: 9 amino acids  
   (B) TYPE: amino acid  
   (D) TOPOLOGY: linear  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

Ser Leu Leu Met Trp Ile Thr Gln Cys  
                   5

- (2) INFORMATION FOR SEQ ID NO: 6:  
 (i) SEQUENCE CHARACTERISTICS:  
   (A) LENGTH: 9 amino acids  
   (B) TYPE: amino acid  
   (D) TOPOLOGY: linear  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

Gln Leu Ser Leu Leu Met Trp Ile Thr  
                   5

- (2) INFORMATION FOR SEQ ID NO: 7:  
 (i) SEQUENCE CHARACTERISTICS:  
   (A) LENGTH: 10 amino acids  
   (B) TYPE: amino acid

(D) TOPOLOGY: linear  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

Leu Leu Met Trp Ile Thr Gln Cys Phe Leu  
5 10

(2) INFORMATION FOR SEQ ID NO: 8:  
(i) SEQUENCE CHARACTERISTICS  
(A) LENGTH: 18 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

Ala Ala Asp His Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln  
5 10 15  
Gln Leu

(2) INFORMATION FOR SEQ ID NO: 9:  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 18 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

Val Leu Leu Lys Glu Phe Thr Val Ser Gly Asn Ile Leu Thr Ile Arg  
5 10 15  
Leu Thr

(2) INFORMATION FOR SEQ ID NO: 10:  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 18 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe Thr Val Ser Gly  
5 10 15  
Asn Ile

(2) INFORMATION FOR SEQ ID NO: 11:  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 18 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

Gly Ala Ala Ser Gly Leu Asn Gly Cys Cys Arg Cys Gly Ala Arg Gly  
5 10 15  
Pro Glu

(2) INFORMATION FOR SEQ ID NO: 12:  
(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met Pro Phe Ala Thr Pro Met  
                     5                    10                    15  
 Glu Ala

- (2) INFORMATION FOR SEQ ID NO: 13:
- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 18 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp His  
                     5                    10                    15  
 Arg Gln

- (2) INFORMATION FOR SEQ ID NO: 14:
- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 6 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

Leu Leu Met Trp Ile Thr  
                     5

- (2) INFORMATION FOR SEQ ID NO: 15:
- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 180 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15

Met	Gln	Ala	Glu	Gly	Arg	Gly	Thr	Gly	Gly	Ser	Thr	Gly	Asp	Ala	5	10	15
Asp	Gly	Pro	Gly	Gly	Pro	Gly	Ile	Pro	Asp	Gly	Pro	Gly	Gly	Asn	20	25	30
Ala	Gly	Gly	Pro	Gly	Glu	Ala	Gly	Ala	Thr	Gly	Gly	Arg	Gly	Pro	35	40	45
Arg	Gly	Ala	Gly	Ala	Ala	Arg	Ala	Ser	Gly	Pro	Gly	Gly	Gly	Ala	50	55	60
Pro	Arg	Gly	Pro	His	Gly	Gly	Ala	Ala	Ser	Gly	Leu	Asn	Gly	Cys	65	70	75
Cys	Arg	Cys	Gly	Ala	Arg	Gly	Pro	Glu	Ser	Arg	Leu	Leu	Glu	Phe	80	85	90
Tyr	Leu	Ala	Met	Pro	Phe	Ala	Thr	Pro	Met	Glu	Ala	Glu	Leu	Ala	95	100	105
Arg	Arg	Ser	Leu	Ala	Gln	Asp	Ala	Pro	Pro	Leu	Pro	Val	Pro	Gly	110	115	120
Val	Leu	Leu	Lys	Glu	Phe	Thr	Val	Ser	Gly	Asn	Ile	Leu	Thr	Ile			

	125		130		135
Arg Leu Thr Ala	Ala Asp His Arg Gln	Leu Gln Leu Ser Ile	Ser		
	140		145		150
Ser Cys Leu Gln	Gln Leu Ser Leu Leu	Met Trp Ile Thr Gln	Cys		
	155		160		165
Phe Leu Pro Val	Phe Leu Ala Gln Pro	Pro Ser Gly Gln Arg	Arg		
	170		175		180